

## Claims

- [c1] 1. A method for performing new material development, the method comprising:  
receiving a user simulation scenario from a user, wherein:  
said user simulation scenario is in a-cyclic graph format and includes a plurality of material development modules represented as vertices including a starting module;  
each said vertex includes data information including at least one input file source and at least one output file destination;  
relationships between said modules are represented as edges;  
each said edge includes at least one of previous module and subsequent module; and  
each said edge includes data flow information between said previous module and said subsequent module;  
receiving a request to invoke said user simulation scenario, wherein said request includes said input file source for said starting module; and  
traversing said vertices along said edge in response to receiving said request and to said data flow information, wherein said traversing includes executing said modules associated with each said vertex beginning with said starting module in an order specified by said edges and said executing results in data being written to said output file destination for each said vertex.
- [c2] 2. The method of claim 1 further comprising creating said user simulation scenario, wherein said creating includes:  
receiving said plurality of material development modules and said edges from said user wherein said plurality of material development modules and said edges are selected from a library of available material development modules and associated edges;  
verifying that said plurality of material development modules and said edges form a subset of a scenario library;  
generating said user simulation scenario in response to said verifying; and  
confirming with said user that said user simulation scenario is correct in response to said generating.
- [c3] 3. The method of claim 2 wherein said scenario library includes said library of

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a material module.

[c17] 17. The method of claim 1 wherein said material development modules include a property module.

[c18] 18. The method of claim 1 wherein said material development modules include a cost and performance model.

[c19] 19. The method of claim 1 wherein said material development modules include an error propagation model.

[c20] 20. The method of claim 1 wherein said material development modules include a knowledge rule.

[c21] 21. A system for performing new material development, the system comprising:  
a network;  
a user system in communication with said network;  
a first storage device including a database component; and  
a first host system in communication with said network and said storage device, said first host system including an integration component to implement a method comprising:  
receiving a user simulation scenario from a user system via said network, wherein:  
said user simulation scenario is in a cyclic graph format and includes a plurality of material development modules represented as vertices including a starting module;  
each said vertex includes data information including at least one input file source and at least one output file destination;  
relationships between said modules are represented as edges;  
each said edge includes at least one of previous module and subsequent module; and  
each said edge includes data flow information between said previous module and said subsequent module;  
receiving a request to invoke said user simulation scenario via said network, wherein said request includes said input file source for said starting module;

and

traversing said vertices along said edges in response to receiving said request and to said data flow information, wherein said traversing includes executing said modules associated with each said vertex beginning with said starting module in an order specified by said edges and said executing results in data being written to said output file destination located on said database component for each said vertex.

- [c22] 22. The system of claim 21 further including a second host system in communication with said network and wherein said second host system includes one of said plurality of material development modules.
- [c23] 23. The system of claim 21 further including a second storage device in communication with said network and wherein a portion of said database component is located on said second storage device.
- [c24] 24. The system of claim 21 wherein said network is the Internet.
- [c25] 25. The system of claim 21 wherein said network is an intranet.
- [c26] 26. The system of claim 21 wherein said network is a LAN.
- [c27] 27. The system of claim 21 wherein said network is a WAN.
- [c28] 28. A computer program product for performing new material development, the computer product comprising:  
a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:  
receiving a user simulation scenario from a user, wherein:  
said user simulation scenario is in a-cyclic graph format and includes a plurality of material development modules represented as vertices including a starting module;  
each said vertex includes data information including at least one input file source and at least one output file destination;  
relationships between said modules are represented as edges;  
each said edge includes at least one of previous module and subsequent

module; and  
each said edge includes data flow information between said previous module  
and said subsequent module;  
receiving a request to invoke said user simulation scenario, wherein said  
request includes said input file source for said starting module; and  
traversing said vertices along said edges in response to receiving said request  
and to said data flow information, wherein said traversing includes executing  
said modules associated with each said vertex beginning with said starting  
module in an order specified by said edges and said executing results in data  
being written to said output file destination for each said vertex.

[c29]

29. The computer program product of claim 28 wherein said computer program  
product is built based on an object oriented framework.